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ABSTRACT

This study evaluated effects of two governmental financial aid programs to increase student access to higher education: the Florida Bright Futures Scholarships (FBFS) and the Federal Tuition Tax Credit (FHOPE). The FBFS program, similar to the Georgia HOPE (Helping Outstanding Pupils Educationally) scholarship program, rewards academic performance in high school. The FHOPE program is intended to make college more affordable for lower income individuals. Analysis focuses on effects of financial aid on enrollment, and data from Georgia's HOPE scholarship program. This study also compared matched samples of Georgia students--2,080 borderline HOPE recipients and 2,047 borderline non-recipients. Analysis suggests that enrollment effects of these programs at the University of South Florida are indirect as increased student persistence and increased student credit hour loads (resulting from better qualified entering students receiving FBFS grants) will affect enrollment, specifically by requiring an increase of more than 300 25-seat, 3-hour course sections by 2001. Suggestions for incorporating scholarships and grants into enrollment, and enrollment projection formulas are offered. (Contains 37 references and 5 tables.) (DB)

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# A Florida Perspective on Enrollment Impacts That Will Result from Recent Financial Aid Trends

ED 433 738

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# A Florida Perspective on Enrollment Impacts That Will Result from Recent Financial Aid Trends


## Abstract

The cost of higher education rose rapidly over the past 20 years, making attendance infeasible for many. Because governments have difficulty passing these increased costs directly to students both the federal government and several state governments have recently implemented financial aid programs to help provide broader access. This study investigated two such programs: The Florida Bright Futures Scholarships (FBFS) and The Federal Tuition Tax Credit (FHOPE) which respectively reward academic performance in high school and make college more affordable. Analyses suggest that at The University of South Florida, given an annual 2,000 student FTIC cohort, that only the persistence increases relating to higher incoming academic credentials from FBFS will increase university course load requirements by more than 300 25-seat, 3-hour course sections by 2001.


## Introduction

The cost of higher education rose rapidly over the past 20 years, making attendance infeasible for many. Constituent pressure for access makes it difficult for governments to pass much of public higher education's costs to students. This is particularly true in a state like Florida, where the State University System's (SUS) primary directives are to provide quality higher education at an affordable price to enable widespread accessibility to citizens. In 1997, following two decades of rapidly rising college costs, two large government financial aid programs were created to help offset these increases: The Federal Tuition Tax Credit (FHOPE), and The Florida Bright Futures Scholarships (FBFS). Research on financial aid indicates that scholarships and grants, and, to a lesser degree, loans, increase college enrollments, in addition to impacting various areas of a student's collegiate experience. Therefore, this research estimated the impacts these programs will have on future enrollment at The University of South Florida's (USF), a large, metropolitan university centered in Tampa, Florida. Additionally, methods of predicting future enrollment based on such financial aid and its influence were developed. Because Florida's Bright Futures program is modeled closely on Georgia's HOPE Scholarships (Helping Outstanding Pupils Educationally), this program's effects were also evaluated.

Financial aid serves two primary purposes:

1. Need-based aid helps provide access for lower-income individuals.
2. Merit-based aid provides support for individuals who exhibit high academic skills.

Most aid comes from federal programs, which are primarily need-based such as Pell Grants and Stafford Loans, and which represent 75 percent of all funds available to students. Over half of all aid is in the form of federally subsidized loans (King, 1996).

### *Literature*

Gerald & Husser (1997) project for NCES an increase in college enrollments largely due to the 18% increase in 18-24 year-olds of 1.8 million between 1996 and 2008 (from 14.3 million to 16.1 million). Macunovich (1997) notes that college enrollment in the traditional 18-24 age group was about 8.8 million in 1994, and changed relatively little between 1969 and 1994, although the total number in that group ranged from 23 million to 31 million over that period. This may result from a demographic "cut-and-fill" effect in which smaller cohorts enroll at higher rates while larger cohorts enroll at lower rates. The author states: "...only one model has accurately forecast enrollment rates over a 16-year horizon (1975 to 1990), and it was achieved by focusing largely on what are termed "birth cohort size effects." In addition to this strong effect of cohort size on enrollment rates, it appears that the growing volume of international trade is increasing the incentive for higher college enrollments as imports weaken the

earning power of less skilled workers, and exports increase the competitive position of more skilled workers. These effects imply an increasing demand for higher education in a period when the college-age population of U.S. residents will be expanding rapidly. For the first time since World War II, relative cohort size (the size of young cohorts relative to parental cohorts) will remain virtually unchanged at the same time that absolute cohort size will be increasing dramatically because these are the children of the baby boomers. The model projects an increase in total demand for higher education among the 18 to 24 group from about 8.8 million in 1994 to 11.4 million in 2004. Gerald & Husser's projection for this group is 9.6 million, which is a large increase. However, the magnitude of Macunovich's 2.6 million possible growth (to 11.4 million) is somewhat alarming.

Although demand for higher education has increased substantially, this has been somewhat offset by cost increases to students that have risen considerably faster than inflation over the past 20 years. This trend has slowed little in the 1990s. Although, lower-income families feel the effects of such increases far more than do upper-income families (NCES, 1997), Mortenson (1989) notes how widespread the effects are even among middle-class families: "... more than four out of five children would require financial assistance to be able to attend college today, even the least costly college, with less than 1 in 10 able to attend an average cost private college without financial aid."

Obviously, many students must seek financial aid in order to attend college. In 1996, 76% of students entering college nationwide were seeking aid, compared to 66% in 1986 (Espinoza, 1997). Unfortunately, federal aid has not kept pace with college cost increases (Wagner, 1993; College Board, 1997a) and has drifted from being grant-based to being-loan based: "As a share of college costs, loans have grown from 17 percent in 1975-76 to 53 percent in 1993-94 (Postsecondary Education Opportunity, 1995).". Today, more than 40% of college seniors nationwide obtain loans that average over $7,000 (NCES, 1994).

One alternative to financial aid and loans is to work while in college. *The Condition of Education 1997,* (NCES, 1997) reports that between 1970 and 1995, the percentage of college students who worked while attending school increased by almost half, from 33.8% to 47.2%, and the percentage working 20 or more hours per week almost doubled, from 14% to 26%.

Despite these steadily increasing costs and the increasing need to work, both in Florida, and nationwide, the percentage of high school graduates who attend higher education has steadily increased. For example, between 1987 and 1997, the percentage of Florida high school graduates who enrolled in an SUS institution rose from 11% to 16%, a 42% increase (SUS Master Admissions Files), while nationally almost 70% of the class of 1982 attended higher education within eight years of graduation (NCES,1996). We may assume that this increasing interest in college derives from widespread media attention to the economic benefits of higher education. For example, the College Board (1997) reports the average lifetime earnings difference between a high school degree and a bachelor's degree is approximately $750,000.00. Further, the gain from completing higher education has been increasing. Lehman & Schenk (1997) state: "In 1993, the average male college graduate's income was 89 percent higher than the average male high school graduate's; the gap between them is twice what it was in the late 1970s because the economy became more focused on information-driven industries."

Because such benefits accrue to students many propose that students should therefore bear a greater portion of the costs. However, economic benefits are not limited to the individuals who experience higher education, because the net benefit to society of financial aid also appears to be quite substantial: "... financial aid was a profitable investment during the 1970s. The net 1988 value of each federal aid dollar in the 1970s was $4.30[1]. Under every set of economic assumptions (worst case/optimistic),

[1] Return on each dollar invested.

investment in aid has a substantial rate of return (St. John & Epps, 1990)." Other, less readily measurable benefits also accrue, for example lower unemployment and greater social involvement.

Therefore, despite pressure to increase the portion of higher education's costs to be born by students, considerable pressure exists for government to provide access to higher education to all who qualify. At least partly as a result, today's White House claims that education is their number one priority and has supported Congress in creating across the board tax credits that began in 1998 to supplement the currently available grants and guaranteed loans.

As noted earlier, the majority of aid is federal and need-based. As a result, more than 80% of low-income students who attend college receive some form of aid (NCES, 1994). However, despite this, after controlling for academic preparedness (as measured by test score quartile rank) national data make it clear that high socioeconomic status (SES) students, and to a lesser extent, middle SES students are more likely to enroll in higher education, more likely to graduate with a bachelor's degree and more likely to attain advanced degrees than are low SES students (NCES, 1996). Further, Mortenson (1990), Sandel, (1997), and Baldhauf (1997) show that beginning in the 1980s, there was a steady movement of gift aid (grants and scholarships as opposed to loans) from low income to middle and upper income individuals in the form of relatively increasing percentages of merit-based awards. Of course, colleges favor this, because merit-based awards allow them to market to more "desirable" students, who increase rankings and status.

### Federal Tax Credits

Beginning with money spent for the spring semester, 1998, couples with an Adjusted Gross Income (AGI) of $75,000 or less can claim a tax credit of up to $1,500 per child for the first two years of college tuition paid in their fiscal year up to a maximum $3,000 for two children (100% of the first $1,000 and 50% of the second $1,000). The Lifetime Learning Credit allows 20% of the first $5,000 for third and fourth year students.

### Florida Bright Futures Scholarships

The only new scholarship in the Bright Futures group is the Florida Merit Scholarship, which is modeled on Georgia's HOPE Scholarship. The Florida Merit Scholarship provides 75% of tuition at a public institution to students who qualify with an Unweighted 3.0 in their 19 core courses and a 970 SAT or a 20 ACT. Based on average annual credit hours, we estimate that the typical recipient of a Florida Merit Scholarship will receive $1,500 per year.

### The Effects of Financial Aid on Enrollment

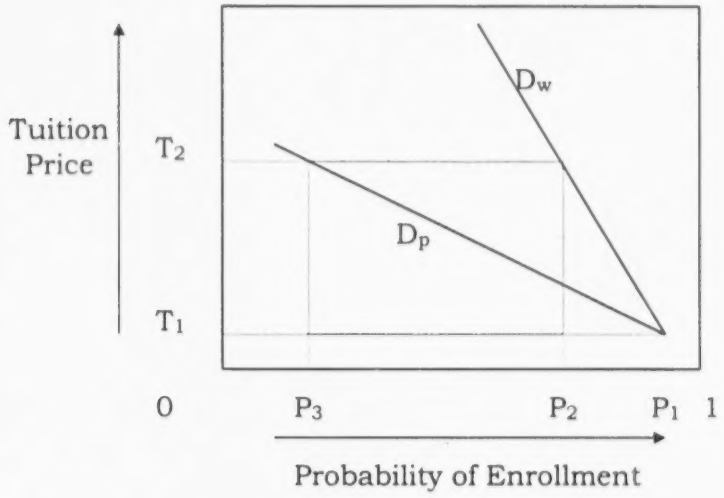
To summarize, financial aid in general, and grants and scholarships in particular associate with increased student enrollment. Some evidence exists suggesting that they also contribute to faster degree progress, higher grades and persistence. Regarding the effects of HOPE Scholarships in Georgia, Baldauf (1997) cites Dan Bugler (co-author of a major research study of HOPE scholars) as saying: ""Somehow, just being named as scholars, with all the prestige and press coverage, students are more likely to think of themselves as college material and stick it out."

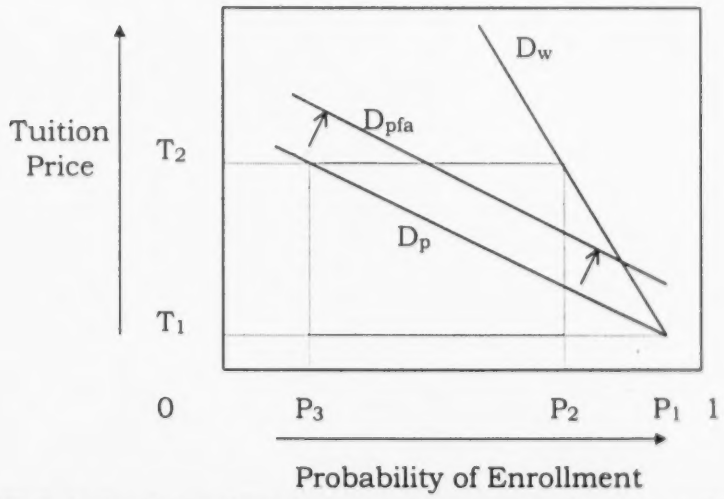
Generally, lower-income individuals, minorities and students at community colleges tend to more "sensitive" to price than others. Figure 1 (from Heller, 1997) graphically illustrates the relationship between tuition and demand for higher education separately for poor ($D_p$) and wealthy ($D_w$) prospective students. the demand line for wealthy students in Panel A shows that their demand is highly elastic. That is, as tuition increases, their demand remains high. For poor students, the demand line is far flatter, with the probability of enrollment dropping substantially as tuition increases. In this theoretical representation, if tuition drops to some very low amount, the demand of both groups comes together, somewhere near an enrollment probability of 1.0. In Panel B, the effects of financial aid are added to the

model, increasing the enrollment of poor with financial aid ($D_{pfa}$) to near that of the wealthy. Heller (1997) notes" most research on this topic has confirmed that these assumptions from economic theory do hold in practice."

**Figure 1**

- Higher Education Demand of Poor ($D_p$) and Wealthy ($D_w$) Students, For Lower ($T_1$) and Higher ($T_2$) Tuitions




**Georgia's HOPE Scholarships (Helping Outstanding Pupils Educationally)**

In 1993, using money from lottery profits, Georgia began awarding full tuition HOPE Scholarships to resident high school graduates who attained at least a 3.0 average in all high school courses.

Table 1 shows that since its inception, Georgia has awarded over 300,000 HOPE Scholarships, about 40% to each of public and technical community colleges) institutions and about 20% to private institutions. The Bottom section of Table 1 shows the historical number of scholarships awarded by institution and includes percentages for those institutions in the top 10 of statewide percentages of FTIC students holding HOPE Scholarships. In the 1997 class, almost the entire FTIC cohort of Georgia high school graduates who attend either Georgia Tech (96%) or the University of Georgia (97%) receive

HOPE Scholarships. Some private institutions also have high percentages of recipients (Spelman College, Savannah College of Art and Design and Barry College all had at least 98% of their 1997 FTIC class receive HOPE Scholarships).

**Table 1**

Historical HOPE Scholarship Awards by Control and Institution

| Total Student Scholarships Historical | Total Awards[2] | % of Awards |
|---|---|---|
| Total Public Colleges and Universities | 121,405 | 39.1% |
| Total Private Colleges and Universities | 59,927 | 19.3% |
| Total Technical Institutes | 128,821 | 41.5% |
| Grand Total | 310,153 | |
| Major Georgia State 4-year Institutions | | % in 1997 Class |
| Georgia Institute of Technology | 7,373 | 96% |
| University of Georgia | 22,299 | 97% |
| Valdosta State University | 6,633 | 73% |
| Georgia State University | 8,493 | 69% |
| Georgia Southern University | 10,900 | |
| Kennesaw State University | 6,059 | |
| Grand Total | 94,408 | |

Source: Georgia Student Finance Commission

Table 2 shows the enrollment growth in the HOPE Scholarship program since it's inception. A few clear trends appear in these data:

- A smaller percentage of eligible students enrolled in the first year than in later years
- The percent of eligible students who did not enroll in an eligible institution dropped from the first to second year and then remained quite stable (between 25% and 27%).
- The percentage of high school graduates who were eligible for HOPE Scholarships rose steadily during the program's four years (from 47.2% to 61%)

**Table 2**

Historical HOPE Scholars Relative to High School Graduates

| Academic Year | N HS Grads (Public) | N HOPE Grads | N HOPE FTICs | % Eligible | Eligible Enrolled | Eligible Not Enrolled |
|---|---|---|---|---|---|---|
| 1993-94 | 59,520 | 28,110 | 6,880 | 47.2% | 11.6% | 35.7% |
| 1994-95 | 58,315 | 30,700 | 15,380 | 52.6% | 26.4% | 26.3% |
| 1995-96 | 59,736 | 34,322 | 19,563 | 57.5% | 32.7% | 24.7% |
| 1996-97 | 57,797 | 35,267 | 19,647 | 61.0% | 34.0% | 27.0% |
| Total | | | 61,470 | | | |

Source: Georgia Student Finance Commission

Davis, Hall, & Henry (1997) report data on the16,376 students who received HOPE Scholarships in 1994-95. HOPE Scholars had 3.7% more female representation (61%) than the total population (57.3%). HOPE Scholars were 76% white, 20% black, 3% Asian and had an average high school GPA of 3.6 and

[2] Some received scholarships at more than one institution and are therefore counted more than once.

an average family income of $44,876. Some 84% of HOPE students persisted in college over a one year period.

A recently completed study (Henry & Bugler, 1997) indicates that HOPE effectively fulfills three primary program objectives :

1. HOPE appears to motivate higher academic performance in college,
2. HOPE appears to motivate greater persistence in college
3. HOPE appears to allow students greater choice in selecting institutions.

The authors compared two approximately matched samples of students, 2,080 borderline HOPE recipients, and 2,047 borderline non-recipients. Both groups had high school GPAs between 3.0-3.16 and core course GPAs between 2.4 and 2.6. The students in the non-HOPE group did not receive the HOPE Scholarship either because they did not apply or they did not meet all HOPE eligibility criteria. [3]

The HOPE scholars showed 19% greater persistence to the 3rd fall semester, 36% more credit hours completed, and although only 4% more attended a National University (such as UGA, Ga Tech or Ga State), 122% more attended a Regional University (Ga Southern or Valdosta State), and 45% fewer attended a state two-year college than did the non-recipients. Clearly, students receiving HOPE Scholarships had greater persistence, completed more work toward a degree and were more likely to attend a more prestigious college and particularly a 4-year college than were comparable students not receiving these scholarships. Their respective college GPAs of the two comparison groups were not different (despite statistical significance that resulted strictly from a large sample size).

Some analysts of the HOPE program speculated that the program would negatively affect traditionally underrepresented groups because these groups are less likely to meet the B or better eligibility standard for high school GPA. However, this appears not to have had much negative impact, at least among African Americans. HOPE scholarships have doubled enrollment in Georgia's historically black colleges (Loupe, 1997), and Henry and Bugler (1997) state: "The results of this research showed that African Americans with HOPE performed at higher levels than those without HOPE....HOPE appears to be motivating African Americans to work harder in high school and, by giving these students more time for study, increasing college persistence levels and allowing them to complete college in less time."

One primary purpose of HOPE was to keep better students in the state. Regarding this choice the Henry & Bugler (1997) note: "One of the most highly publicized impacts of HOPE is that it has increased the likelihood...(including) some of the most competitive high school graduates have chosen to remain in the state, thereby...increasing the average SAT scores of enrolled students at UGA, GA Tech and GA State (between 1991-92 and 1995-96) from an average combined score of 1039 to 1073." Others, including Batten (1997), Mantius (1997), Fullerton (1997), Stepp (1996), Ferris (1995) and Fischer (1997) also support these findings.

Florida's merit scholarships are more difficult to obtain and provide less support than Georgia's HOPE Scholarship: Georgia only requires an overall 3.0 high school GPA, Florida requires this in the 19 core courses (mathematics, natural science, languages, social sciences and history). Florida requires test score standards in addition to GPA standards, while Georgia does not. Georgia's HOPE Scholarships provide

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[3] Unlike Florida, where GPA in high school core courses determines eligibility for Bright Futures Scholarships, in Georgia, scholarships are awarded based on total GPA. Thus, the matched samples were drawn from HOPE recipients and non-HOPE recipients with overall GPAs of 3.0-3.16 and core GPAs between 2.4 and 2.6, which makes this a relatively good match. The sample does appear somewhat biased for those students who did not apply for the scholarship, one may possibly assume that the motivation of an eligible student who applies and of an eligible student who does not apply differ in some important aspects that relate to both choice and performance in higher education.

full tuition to students at public institutions and $3,000 per academic school year to students at private institutions. Florida's Merit Scholarship provides 75% of pubic higher education institution tuition for up to 45 credit hours per year whether a student attends a public or private institution (a maximum of approximately $2,500). Georgia's HOPE Scholarship provides up to $400 per year for books. Florida's Merit Scholarship does not. We should therefore expect somewhat less of a long-term effect from Florida's scholarship.

## *Methods*

### Primary Research Question

This research addresses primarily the following research question:

1. What impact will the Florida Bright Futures Scholarships have on student enrollment, persistence and credit hour generation at USF?

In Florida, the effects of the Federal Tax Credits will apply almost strictly to those students who fail to qualify for a Bright Futures Merit Scholarship, because those scholarships will effectively eliminate eligibility for the tax credit. Additionally, because Bright Futures Scholarships must be reported when a student applies for any other scholarships, we must assume that some other grants and scholarships for which recipients of Bright Futures Scholarships previously would have been eligible will no longer fall to them, which will somewhat offset the Bright Futures scholarships.

### Estimating Expected Changes in Persistence and Credit Hour Loads

Analyses of retention and credit hour load differences across GPA category (< 2.5, 2.5 to < 3.0, 3.0 to < 3.5, 3.5 and above) from two historical FTIC cohorts were computed for 6 years. From these and the estimated 3% increase per $1,000 aid (4%) for qualified applicants, estimates of future enrollments, retention and credit hour loads were made.

When projecting USF enrollments in future years, the number of projected high school graduates in Florida was multiplied times historical yield percentages of those applicants to USF increased by 3% among scholarship qualifier percentages. The resultant applicant numbers were multiplied by 1997 yields to provide an estimate of total cohort numbers in future years.

- The Florida Bright Futures Scholarship first year yields (fall 1997) were compared with fall 1996 yields across the Florida SUS.

To estimate the percentages of a future cohort that would have specific merit qualifications, USF's 1997 percentages were applied to the cohort. When estimating the GPA makeup of future cohorts, adjustments based on historical yield increases that associate with financial aid were applied to appropriate cohort segments, and tax credit expectations were applied to non-qualifiers.

### Variables and Definitions

Yield - the percent of an applicant pool that enrolled at an institution.

Persistence - enrollment during at least one semester in a specific year.

SCH - Student Credit Hours - the number of credits for which a student enrolls.

### Limitations

Due to the fact that the Federal Tuition-related Tax Credits only apply to those who pay taxes and do not have other tuition offsets such as Pell Grants or Bright Futures Scholarships, we should expect these to have at low enrollment influences.

In the analyses relating to the numbers of Bright Futures Scholars, because we used the Florida SUS Statewide Admissions files, eligibility was determined using High School total Grade Point Average (GPA) and test scores on either the ACT or SAT (highest). Because eligibility for the Bright Futures

Scholarships involves only GPA in 19 core courses and has several "or" exceptions to the simple GPA X Test Score definitions used, the use of overall GPA reflects at best a rough eligibility estimate. For example, in the 1997 fall admissions files, 417 students enrolled at USF who qualified for the Florida Academic Scholarship, according to the SUS Master Admissions Files. However, USF's internal admissions and financial aid files show that 472 students in fact were enrolled and receiving that scholarship.

## Results and Discussion

The FBFS program, begun in 1997, includes two levels: the higher level Academic Scholar and the Merit Scholar (similar to Georgia's HOPE). The Florida (SUS) resident applicant pool in 1997 included 16% more qualifiers for Florida Academic Scholarships, 8% more qualifiers for Florida Merit Scholarships and 2% fewer non-qualifiers than the 1996 pool. Further, the yield was 4% higher for both types of scholarship qualifiers and almost 4% lower for non-qualifiers. This program clearly associated with higher enrollments of better qualified students throughout Florida.

USF's 1997 incoming FTIC class was significantly better qualified academically than previous classes. For example, USF's percentage of resident enrollees carrying a high school GPA above 3.5 jumped from 43% in 1996 to 52% in 1997. Data from Georgia suggests that the percentage of qualifiers for HOPE scholarships increased steadily during the programs first four years, and we should expect similar effects in Florida.

Florida will see increases in high school graduates over the next 10 years. In 1997, USF's incoming fall freshman class was some 2,300 students. Given no increases as a result of scholarships, this class could increase to some 3,000 by Fall 2002. Effects from financial aid influences will increase this number by about 10%.

Increased persistence and Student Credit Hours (SCH) loads accompany improved academic qualifications. Therefore, based on historical data, and the 1997 qualifications data compared with 1996, headcount enrollment will increase by approximately 45 students in year three and year four (year two differences tend to be less). Each year this translates into SCH increases that range from a maximum of 1,373 in year three to a minimum of 74 in year six. Of course these effects cumulate from prior cohorts each year. In addition, based upon Henry & Bugler's (1997) findings, we estimate that the Bright Futures Merit Scholarships may increase persistence by 4.5% in the 3rd year with differential rates in other years. Finally, although not in effect at the time of the study, the Federal Tuition Tax Credits (FHOPE) will also have some influence on enrollments for non-qualifiers starting in 1998.

Table 3 shows that as high school GPA rises, persistence rates also increase, with the greatest effects occurring in early years and becoming smaller as time goes on. For example, 76% of students with between a 2.5 and 2.99 high school GPA return in the second year, while 85% of those with a 3.5 or above average do so. Largely because so many students graduate before the 6th year, these rates come far closer in the 6th year, becoming respectively 14% and 15%.

**Table 3**

Mean Persistence Rate by High School Grade Point Average

| HS GPA | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|
| 1.00 TO 2.49 | 71.6% | 51.3% | 44.3% | 32.6% | 13.1% |
| 2.50 TO 2.99 | 75.7% | 62.0% | 53.8% | 34.8% | 14.0% |
| 3.00 to 3.24 | 77.7% | 66.5% | 59.7% | 35.6% | 13.5% |
| 3.25 TO 3.49 | 78.5% | 70.1% | 60.1% | 36.8% | 15.9% |
| 3.50 TO 4.00 | 85.4% | 79.2% | 72.6% | 40.8% | 15.3% |

Source: IRP Retention Database

Table 4 shows the historical mean annual credit hours completed by the average student in each GPA category. Clearly, effects are similar to, although smaller than those for persistence. Again, students with higher incoming GPAs on average take more credit hours early in their careers, with the differences dropping or disappearing by the 5th year. Students in the 3.5 and above category on average enroll for at least 10% more credits than all other levels in all years except Year 5.

**Table 4**

Mean Annual Credit Hours Completed by High School Grade Point Average

| HS GPA | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|
| 1.00 TO 2.49 | 22.64 | 22.15 | 22.97 | 18.91 | 15.22 |
| 2.50 TO 2.99 | 22.98 | 23.57 | 23.51 | 18.87 | 15.37 |
| 3.00 to 3.24 | 24.37 | 25.46 | 22.87 | 17.08 | 14.80 |
| 3.25 TO 3.49 | 24.23 | 25.14 | 22.18 | 17.28 | 16.13 |
| 3.50 or Higher | 27.72 | 26.52 | 24.01 | 18.20 | 18.74 |

Source: IRP Retention Database

Given the 1996 to 1997 improvements in the academic qualifications of USF's Florida enrollees and the persistence differences among GPA levels shown in Table 3 we should expect that the changes will have long-term enrollment effects, and that future years enrollments for each cohort will necessarily increase as a result of this change. Table 5 shows that for two 2,000 student cohorts of Florida FTIC students one having the GPA improvements from the 1996 to the 1997 cohort.

**Table 5**

Expected 6-Year Enrollment Rates for Two 2,000 Student Cohorts Having 1996 and 1997 High School Grade Point Averages, With SCH Estimates

| HS GPA | % | N | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|
| Totals 1996 Percent | | 2,000 | 1,608 | 1,144 | 742 | 286 | 43 |
| Totals 1997 Percent | | 2,000 | 1,627 | 1,187 | 789 | 308 | 46 |
| Headcount Increase | | | 19 | 42 | 47 | 22 | 4 |
| SCH Increase | | | 1,176 | 1,373 | 1,160 | 392 | 74 |
| 1996 GPA Percentages and Expected Persistence | | | | | | | |
| 1.0 TO 2.5 | 6.00% | 120 | 86 | 44 | 20 | 6 | 1 |
| 2.5 TO 2.99 | 20.20% | 404 | 306 | 190 | 102 | 36 | 5 |
| 3.0 to 3.25 | 17.40% | 348 | 270 | 180 | 107 | 38 | 5 |
| 3.25 TO 3.49 | 12.80% | 256 | 201 | 141 | 85 | 31 | 5 |
| 3.5 TO 4.00 | 43.60% | 872 | 745 | 590 | 428 | 175 | 27 |
| 1997 GPA Percentages and Expected Persistence | | | | | | | |
| 1.0 TO 2.5 | 3.30% | 66 | 47 | 24 | 11 | 4 | 0 |
| 2.5 TO 2.99 | 14.50% | 290 | 220 | 136 | 73 | 25 | 4 |
| 3.0 to 3.25 | 16.60% | 332 | 258 | 172 | 102 | 36 | 5 |
| 3.25 TO 3.49 | 13.00% | 260 | 204 | 143 | 86 | 32 | 5 |
| 3.5 TO 4.00 | 52.60% | 1,052 | 898 | 712 | 517 | 211 | 32 |

Sources: IRP Retention Database, SUS Master Admissions Files

Our estimates suggest that for an incoming cohort of 2,000 Florida Resident students, the GPA improvements between USF's 1996 and 1997 class will produce increases of approximately 1,200 SCH per year in the 2nd, 3rd and 4th year of the cohort's enrollment. The cumulative effect over a 3 year period is about 3,600 SCH, which translates to 1,200 seats in 3-hour sections.

## Conclusions and Projection Methods

Projections of increases in student enrollment, persistence and credit hour loads suggest that even if no increases in enrollees occur because of the new scholarships and tax credits, simply because of the higher GPAs and increasing numbers over time, beginning with the 1998 cohort of entering FTIC students, substantial increases in SCH will be generated by each succeeding cohort at USF, with large increases occurring particularly in the 2nd, 3rd and 4th year after a cohort's matriculation (on the order of 4,000 to 10,000 more SCH for future cohorts than for the 1996 cohort). These effects accumulate as the cohorts move along in their college careers. Effects from all relevant cohorts creates a cumulative increase of some 25,000 SCH for the year 2001, which translates to more than 300 25-seat, 3-hour course sections. Further, this estimate makes no assumptions about either greater numbers or credit loads among the 2001 incoming FTIC cohort. Therefore, this may be viewed as a conservative estimate.

### Creating Projections for Your Institution

Although all such projections are admittedly simplistic and have numerous underlying assumptions, several factors are clear from the literature:

Reducing student net costs of attendance through scholarships or grants increases enrollments. We found that a 3% per $1,000 estimate was reasonably accurate in Florida (average scholarship $1,500, average increase statewide 4%).

Increasing attendance among students with higher academic qualifications increases both retention and credit hour loads.

One may implement the following steps to project changes from scholarships:

1. Determine what percentage of your typical applicant pool will be eligible.
2. For every $1,000 of scholarship, increase this group's expected yield by 2.5-3.0%.
3. Develop estimates of credit hour loads (per year or term) and retention within prior institution GPA categories. Compute the expected changes that will result from changes in a cohort's distribution among GPA categories as shown in Table 5.
4. Cumulate separately for each cohort, the long-term effects of these changes, then combine the effects of all cohorts on each year's projections.

Similar effects may occur for transfer or graduate students, however, the literature on this is sparse.

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